

What is claimed is:

1 1. A ball grid array package, comprising:
2 a substrate which has a top surface and an opposite
3 bottom surface, said bottom surface having an outer array of
4 contact pads each separated from each other by a first
5 distance, and a center array of contact pads each separated
6 from each other by a second distance, said center array of
7 contact pads being separated from said outer array of contact
8 pads by a third distance which is larger than the first and
9 second distances; and,
10 a plurality of solder balls attached to said contact
11 pads of said substrate.

1 2. The package as recited in claim 1, wherein said top
2 surface of said substrate has a plurality of bond pads.

1 3. The package as recited in claim 2, wherein said top
2 surface of said substrate has a ground bus that is connected
3 to said center array of contact pads by a plurality of vias
4 that extend through said substrate.

1 4. The package as recited in claim 3, wherein said
2 outer array of contact pads has at least five rows of contact
3 pads.

1 5. The package as recited in claim 4, wherein said top
2 surface of said substrate has a power bus that is connected
3 to said center array of contact pads by a plurality of vias
4 that extend through said substrate.

1 6. The package as recited in claim 5, wherein said
2 center array of contact pads is arranged in a four by four
3 matrix.

1 7. A ball grid array integrated circuit package,
2 comprising:

3 a substrate which has a top surface and an opposite
4 bottom surface, said top surface having a plurality of bond
5 pads, said bottom surface having an outer array of contact
6 pads each separated from each other by a first distance, and
7 a center array of contact pads each separated from each other
8 by a second distance, said center array of contact pads being
9 separated from said outer array of contact pads by a third
10 distance which is larger than the first and second distances;

11 a plurality of solder balls attached to said contact
12 pads of said substrate; and,

13 an integrated circuit that is mounted to said substrate
14 and coupled to said bond pads.

1 8. The package as recited in claim 7, wherein said top
2 surface of said substrate has a ground bus that is coupled to

3 said integrated circuit and connected to said center array of
4 contact pads by a plurality of vias that extend through said
5 substrate.

1 9. The package as recited in claim 8, wherein said
2 outer array of contact pads has at least five rows of contact
3 pads.

1 10. The package as recited in claim 9, wherein said top
2 surface of said substrate has a power bus that is connected
3 to said center array of contact pads by a plurality of vias
4 that extend through said substrate.

1 11. The package as recited in claim 10, wherein said
2 center array of contact pads is arranged in a four by four
3 matrix.

1 12. The package as recited in claim 11, wherein said
2 integrated circuit is enclosed by an encapsulant.

1 13. The package as recited in claim 7, wherein said
2 outer array of contact pads is located outside an outer
3 dimensional profile of said integrated circuit.

1 14. A method for assembling a ball grid array
2 integrated circuit package, comprising the steps of:

3 a) providing a substrate which has a top surface and
4 an opposite bottom surface, said bottom surface having an
5 outer array of contact pads each separated from each other by
6 a first distance, and a center array of contact pads each
7 separated from each other by a second distance, said center
8 array of contact pads being separated from said outer array
9 of contact pads by a third distance which is larger than the
10 first and second distances;

11 b) mounting an integrated circuit to said top surface
12 of said substrate; and,

13 c) attaching a plurality of said solder balls to said
14 contact pads.

1 15. The method as recited in claim 14, further
2 comprising the step of encapsulating said integrated circuit.

1 16. The method as recited in claim 15, further
2 comprising the step of coupling said integrated circuit to
3 said substrate with a plurality of bond wires.